

SMILE SURVEY 2005
*THE ORAL HEALTH OF CHILDREN IN
SKAMANIA COUNTY, WASHINGTON*



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SMILE SURVEY 2005 REPORT

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- ☐ BECKI MATTHEWS, RECORDER
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SUMMARY

During the 2004-2005 school year, the Clark County Health Department conducted an oral health survey of low-income preschool and elementary school children in Skamania County. All Head Start/ECEAP centers and public elementary schools with 2nd and 3rd grade children agreed to participate. Dental hygienists, who attended a one day training session, screened the children using gloves, a disposable dental mirror and penlight. A total of 29 Head Start/ECAP children and 184 elementary school students were screened.

Key Findings

- ⇒ Dental decay is a significant public health problem for low-income preschool children.
 - 62 percent of these 3-5 year old children already had cavities and/or fillings (decay experience).
 - 35 percent had untreated dental decay (cavities).
 - 10 percent had a history of rampant dental decay (decay experience on 7 or more teeth).
- ⇒ Dental decay is a significant public health problem for elementary school children.
 - 71 percent of these 2nd and 3rd grade children already had cavities and/or fillings.
 - 18 percent had untreated dental decay.
 - 19 percent had a history of rampant dental decay.
- ⇒ While dental sealants are a proven method for preventing decay, a substantial proportion of Skamania County's children do not have access to this preventive service.
 - Only 38 percent of the third grade children had dental sealants.
- ⇒ Skamania County has met and exceeded the Healthy People 2010 objective for untreated decay in elementary school children but still needs to make progress in preventing tooth decay in young children.
 - The target for the Healthy People 2010 objective for untreated decay is 21 percent. Based on the results of this survey, 18 percent of the 2nd and 3rd grade children had untreated decay; just below the target of 21 percent.
- ⇒ While Skamania County has been successful in obtaining dental care for elementary school children, they are falling behind the rest of the state in terms of decay experience, preventive dental sealants and obtaining dental care for low income preschool children.
 - Compared to all children in Washington, a substantially higher proportion of Skamania County children have decay experience while a lower proportion have dental sealants.
- ⇒ Although community water fluoridation is a proven method for preventing tooth decay, there are no water systems in Skamania County that contain optimal levels of fluoride.

Methods

Sampling

An electronic data file of all elementary schools in Skamania County was obtained from the Washington Office of Superintendent of Public Instruction. The data file, which was for the 2003-2004 school year, contained the following information for each school – district, county, total enrollment, 3rd grade enrollment, number of children participating in the free or reduced price lunch program, and school address. All public elementary schools in Skamania County agreed to participate in the screening and all second and/or third grade children were offered a screening.

For the Head Start/ECEAP sample, an electronic list of all Head Start and ECEAP programs in Washington was developed by the Washington State Department of Health. The data file, which was for the 2003-2004 school year, contained the following information for each program – site name, program type (ECEAP, Head Start, and Early Head Start), contact information, and funded enrollment. All Head Start/ECEAP programs in Skamania County agreed to participate.

Data Management and Analysis

Data entry and analysis was completed using Epi Info Version 3.2.2. Epi Info is a public access software program developed and supported by the Centers for Disease Control and Prevention. The data were not adjusted for non-response within each school.

Screening Protocols

Dental hygienists completed the screenings using gloves, penlights, and disposable mouth mirrors. The diagnostic criteria outlined in the Association of State and Territorial Dental Directors publication *Basic Screening Surveys: An Approach to Monitoring Community Oral Health* were used. The screeners attended a full-day training session which included a didactic review of the diagnostic criteria along with a hands-on calibration session. Information on age and language spoken at home was obtained from the child while gender and race were determined by the screener. Attempts were made to obtain information on a child's eligibility for the FRL program from each school; many schools, however, were unwilling or unable to provide this information.

Results

Elementary School Children

Of the 5 elementary schools in Skamania County, all agreed to participate in the oral health survey. There were 184 children enrolled in the participating schools with 147 children screened; an 80 percent response rate. Refer to Table 1.

The children screened ranged in age from 7-10 years. About half of the children (49%) were male, 98 percent spoke English at home and 90 percent were white non-Hispanic. Refer to Table 2.

Seventy-one percent of the children screened had decay experience (untreated decay or fillings) in their primary and/or permanent teeth while 18 percent had untreated decay at the time of the screening.¹ About 15 percent of the children needed dental treatment including 3 percent in need of urgent dental care because of pain or infection. Children with a history of decay on seven or more teeth are considered to have rampant decay; 19 percent of the 2nd and 3rd grade children in Skamania County had rampant decay. Refer to Table 3.

Only 38 percent of the 3rd grade children had a dental sealant on at least one permanent molar. Dental sealants provide an effective way to prevent decay on the chewing surfaces of molars (back teeth), which are most vulnerable to caries. A clear resin is used to cover the “pits and fissures” on the top of the teeth so that cavity-causing bacteria cannot reach areas that are difficult to clean and for fluoride to penetrate. Refer to Table 3.

In Skamania County’s 2nd and 3rd grade children, decay is largely limited to the primary teeth. Twenty-nine percent of the children screened had no decay history, 60 percent had decay in their primary teeth only, while 12 percent had decay in their permanent teeth. Refer to Table 4.

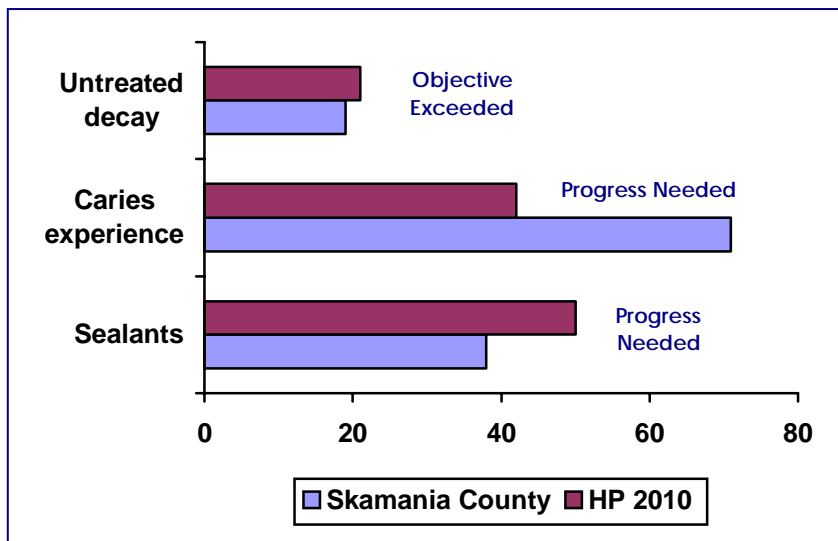
Although information on race/ethnicity and language spoken at home was collected, the sample size for Skamania County was too small for stratified analyses.

The National Oral Health Objectives for the Year 2010 (Healthy People 2010) outline several oral health status objectives for young children. For six- to eight-year-old children there are three primary oral health status objectives:

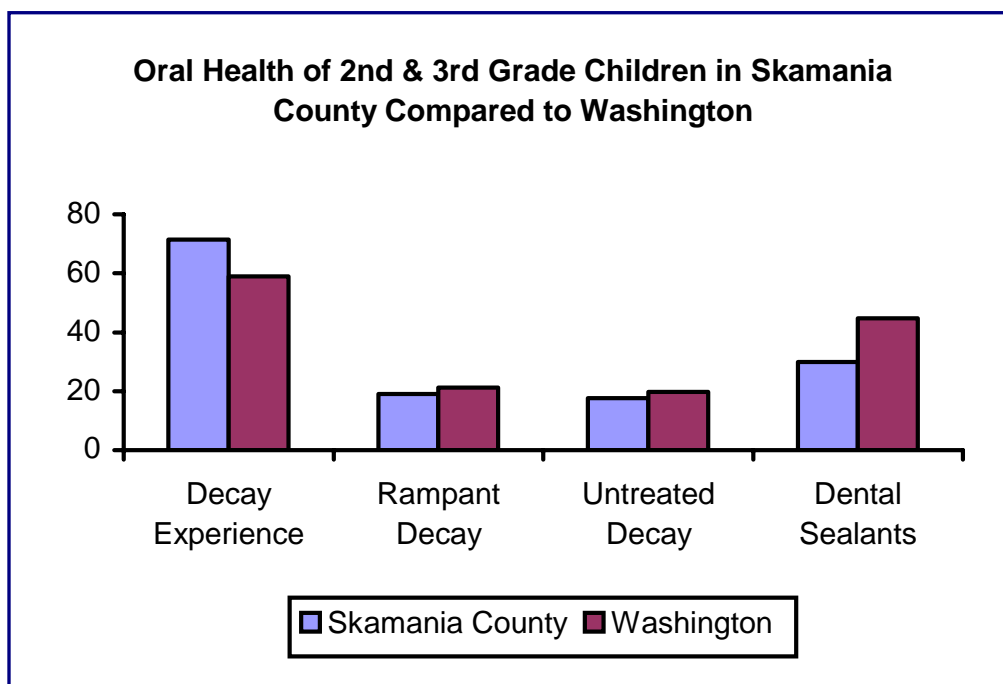
- To decrease the proportion of children who have experienced dental caries in permanent or primary teeth to 42 percent.
- To decrease the proportion of children with untreated dental caries in permanent or primary teeth to 21 percent.
- To increase the proportion of eight-year-olds receiving protective sealing of the occlusal surfaces of permanent molar teeth to 50 percent.

¹ The percent of children with untreated decay is assumed to be an under estimation because radiographs (x-rays) were not taken.

It should be noted that the Skamania County Oral Health Survey was not designed to be representative of 6-8 year old children; with the majority of children screened being 7-9 years of age. Seventy-one percent of the 2nd and 3rd graders screened in Skamania County had experienced dental caries – substantially higher than the HP2010 objective of 42 percent. Eighteen percent of Skamania County's 2nd and 3rd graders had untreated caries compared to the HP2010 objective of 21 percent and 38 percent of Skamania County's 3rd graders had dental sealants compared to the HP2010 objective of 50 percent.



The following figure compares the oral health of Skamania County's elementary school children with the oral health of elementary children throughout Washington State. Second and third grade children in Skamania County have a higher prevalence of decay experience and a lower prevalence of dental sealants. There is no difference in terms of either rampant or untreated decay.



Head Start Children

In Skamania County, there are 34 children enrolled in Head Start/ECEAP. Twenty-nine of these children were screened; an 85 percent response rate. Refer to Table 5.

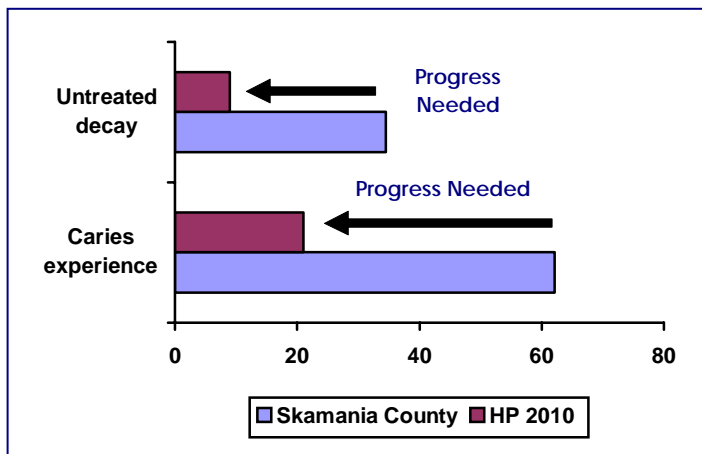
The children screened ranged in age from 3-5 years. More than half of the children (69%) were male, 72 percent spoke English at home, and 28 percent spoke Spanish at home. Sixty-six percent were white non-Hispanic while 31% were Hispanic. Refer to Table 6.

Sixty-two percent of the children screened had decay experience (untreated decay or fillings) and 35 percent had untreated decay at the time of the screening.² About 28 percent of the children needed dental treatment. Children with a history of decay on seven or more teeth are considered to have rampant decay. About 10 percent of the Head Start/ECEAP children in Skamania County had rampant decay, 21 percent had early childhood caries and 14 percent had incipient dental decay (white spot lesions). Refer to Table 7.

The National Oral Health Objectives for the Year 2010 (Healthy People 2010) outline several oral health status objectives for preschool children. For two- to four-year-old children there are two primary oral health status objectives:

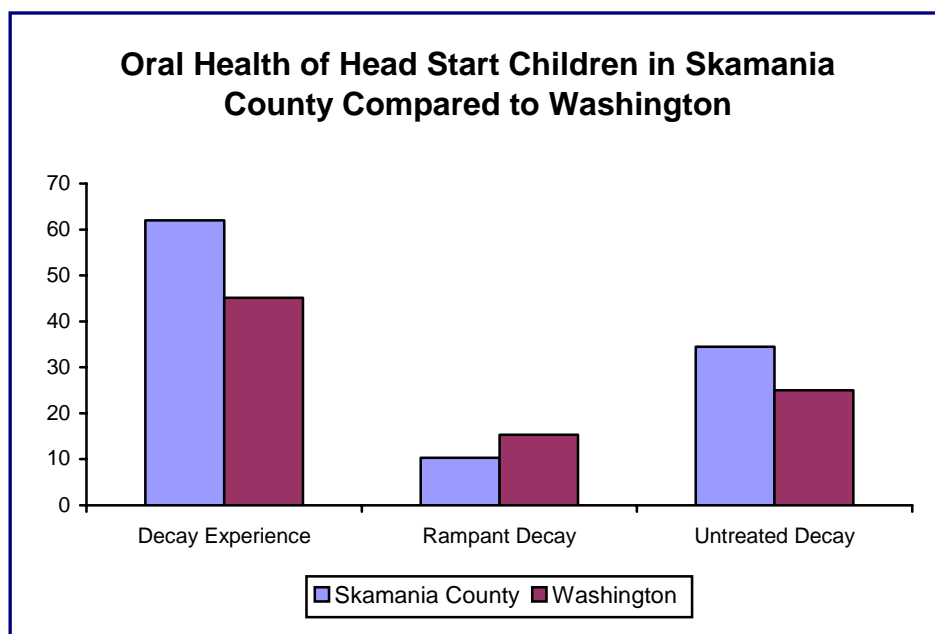
- To decrease the proportion of young children with dental caries experience in their primary in teeth to 11 percent.
- To decrease the proportion of young children with untreated dental caries in their primary teeth to 9 percent.

It should be noted that the Skamania County Oral Health Survey was not designed to be representative of all 2-4 year old children; with all of Skamania County's low-income preschool children being 3-5 years of age. Sixty-two percent of Skamania County's Head Start/ECEAP enrollees had experienced dental caries – substantially higher than the HP2010 objective of 11 percent. Thirty-five percent of Skamania County's low-income preschool children had untreated caries compared to the HP2010 objective of 9 percent.



² The percent of children with untreated decay is assumed to be an under estimation because radiographs (x-rays) were not taken.

The following figure compares the oral health of Skamania County's Head Start/ECEAP children with the oral health of low-income preschool children throughout Washington State. Although Skamania County has a lower prevalence of rampant decay, the prevalence of decay experience and untreated decay is substantially higher in Skamania County's Head Start children compared to the state as a whole.



Skamania County School Survey Data Tables

Table 1
Participation in the Skamania County Oral Health Survey
Elementary Schools

	2nd & 3rd Grade Enrollment	Percent on FRL	Number Screened	Response Rate
All Skamania County Elementary Schools (n=5)	184	42.4%	147	79.9
Participating Schools (n=5)	184	42.4%	147	79.9

Source: Washington Office of Superintendent of Public Instruction, 2002-2003 School Year

Note: All schools in Skamania County were screened

Table 2
Demographics of the 2nd & 3rd Grade Children Screened

Variable	Number of Children	Mean or Percent
Age		
Mean (Standard Deviation)	147	8.16 (0.71)
Range		7-10 years
Grade		
2 nd	63	42.9%
3 rd	84	57.1%
Gender		
Male	72	49.3%
Female	74	50.7%
Language Spoken at Home		
English	144	98.0%
Spanish	0	0.0%
Other	2	1.4%
Unknown	1	0.7%
Race/Ethnicity		
White	132	89.8%
African American	1	0.7%
Hispanic	4	2.7%
Asian	3	2.0%
American Indian/Alaska Native	4	2.7%
Other	3	2.0%
Unknown	0	0.0%

Table 3
The Oral Health of Skamania County's 2nd and 3rd Grade Children

Oral Health Measure	Percent
% caries free (no treated or untreated decay)	28.6
% with caries experience (has treated or untreated decay)	71.4
% with treated decay	62.6
% with untreated decay	17.7
% with rampant caries (7+ teeth with caries experience)	19.0
% with dental sealants	
2 nd and 3 rd grade	29.9
3 rd grade only	38.1
Treatment Need	
% with no obvious problem	84.9
% needing early dental care	12.3
% needing urgent dental care	2.7

NOTE: All schools in Skamania County were screened rather than a probability sample. For this reason, confidence intervals have not been calculated.

Table 4
Distribution of Treated Decay, Untreated Decay and Caries Experience
Among the Primary & Permanent Dentitions for Skamania County's 2nd & 3rd Grade Children

	Percent of Children
Treated Decay	
No treated decay	37.4
Primary teeth only	53.1
Primary and permanent teeth	8.8
Permanent teeth only	0.7
Untreated Decay	
No untreated decay	82.3
Primary teeth only	15.6
Primary and permanent teeth	1.4
Permanent teeth only	0.7
Caries Experience	
No caries experience (caries free)	28.6
Primary teeth only	59.9
Primary and permanent teeth	10.9
Permanent teeth only	0.7

Table 5
Head Start/ECEAP Enrollment, Number Screened and Response Rate in Skamania County

	Enrollment	# Screened	Response Rate
Skamania County Head Start / ECAP Programs (n=1)	34	29	85.3

NOTE: All selected Head Start Programs agreed to participate

Table 6
Demographics of the Head Start/ECAP Children Screened in Skamania County

Variable	Skamania County	
	Number of Children	Mean or Percent
Age		
Mean (Standard Deviation)	29	4.28 (0.70)
Range		3 - 5 years
Gender		
Male	20	69.0
Female	9	31.0
Language Spoken at Home		
English	21	72.4
Spanish	8	27.6
Race/Ethnicity		
White	19	65.5
African American	1	3.4
Hispanic	9	31.0

Table 7
The Oral Health of Skamania County's Head Start Children

Oral Health Measure	Percent of Children
% caries free	37.9
% with caries experience	62.1
% with treated decay	34.5
% with untreated decay	34.5
% with rampant caries	10.3
% with ECC	20.7
% with white spot lesions	13.8
Treatment Need	
% with no obvious problem	72.4
% needing early dental care	27.6
% needing urgent dental care	0.0

NOTE: All Head Start/ECEAP programs in Skamania County were screened rather than a probability sample. For this reason, confidence intervals have not been calculated.

Appendix 1
Response Rate and FRL Percent at the Participating Schools in Skamania County

County	School	# Enrolled	# Screened	Response Rate	FRL Percent
Skamania	Carson Elementary	70	62	88.6%	41.0%
Skamania	Mill A Elementary	20	18	90.0%	55.0%
Skamania	Mt. Pleasant Elementary	20	17	85.0%	24.6%
Skamania	Skamania Elementary	13	11	84.6%	48.0%
Skamania	Stevenson Elementary	61	39	63.9%	42.0%

Appendix 1
Percent of Children with Decay Experience, Untreated Decay and Dental Sealants by School

School Name	Decay Experience Percent of Children	Untreated Decay Percent of Children	Dental Sealants Percent of Children
Carson Elementary	72.6	21.0	27.4
Mill A Elementary	66.7	11.1	27.8
Mt. Pleasant Elementary	82.4	17.6	29.4
Skamania Elementary	90.9	18.2	63.6
Stevenson Elementary	61.5	15.4	25.6